

Work Order ID 62971

Thursday, October 14, 2010 12:41:44 PM



Page 1

Item ID: D3391-011

Accept



Setup Start



Revision ID:

Item Name: Fwd Tube Assembly

Stop



Start Date: 10/14/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 10/22/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals:

Process Plan:

*H*Date: 10-10-14

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

Draw Nbr	Revision Nbr
D3391	Rev H

100



Skidtubes

Skidtubes

Memo

Skidtubes

Cut extrusion to 46.52 +0.010 -0.020

0.00

*DP**10-10-20*

110



BENDING MACHINE - SKIDTUBES

CNC Bend 1

Memo

CNC Delta 100 Bender

Bend as per Dwg D3391

0.00

*DP**10-10-20*

120



QC5- Inspect part completeness to step on W/O

QC

Memo

Quality Control

0.00

0.00

10-10-22

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
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NOTE: Date & initial all entries

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Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run

Start



QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/
Work Center ID

130

Operation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

0.00

HAAS 1

HAAS CNC VERTICAL MACHINING #1

0.00

HAAS 1

Memo

1-Machine as per Folio FA590 Rev. ____ & Dwg D3391 Rev. ____
Identify as D3391-1

10/11/15

140



QC2- Inspect parts off machine FAI/FAIB

0.00

QC

Memo

0.00

Quality Control

10/11/15

150



CONVENTIONAL MILLING MACHINE

0.00

Mill Conv

Memo

0.00

Conventional Milling Machine

1-Drill .1875" at end of tube as per Dwg D3391

10/11/17

W/O:		WORK ORDER CHANGES					
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Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run

Start



QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

160

QC2- Inspect parts off machine FAI/FAIB

0.00



QC

Quality Control

Memo

 10/11/17

170

QC8- Inspect parts - second check

0.00



QC

Quality Control

Memo

0.00

 10/11/22

W/O:		WORK ORDER CHANGES					
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Customer:

Reference:

Approvals: Process Plan: _____

Date: _____

Tooling: _____

Date: _____

Run Start



QC: _____

Date: _____

SPC (Y/N): _____

Date: _____

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

180



Skidtubes

Skidtubes

Memo

0.00

1-Drill and c'sink float bag holes as per Dwg D3391 using DT8798(Do not open tow cap holes to finish size)
(DRILL ALL HOLES)

2-Drill Remaining two holes for tow cap using DT 8819 Locating off of .1875" holes drilled in previous step

3-Open tow cap holes to .208" as per Dwg D3391

4-Open Tow Ring hole to .640" as per Dwg D3391

5- open float bag holes 0.328" and counter sink as per dwg D3391

6-Deburr and scribe batch # inside aft end

7- transfer drill D3391-011 with D3391-013

DP

10-12-1

190



QC5- Inspect part completeness to step on W/O

0.00

QC

Quality Control

Memo

0.00

10-12-16

QD

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Customer:

Reference:

Approvals: Process Plan:

Date:

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

200



HandFinish

Chemical Conversion Coat per QSI005 4.1

0.00

DP

10-12-2

Hand Finishing

210



QC

QC3- Inspect Part Finish

0.00

Quality Control

Memo

0.00

1 8 2010/10/12/2010

220



Skidtubes

Skidtubes

0.00

Memo

0.00

1-Install crossbolt spacers per dwg D3391

A/R Magnabond 6398 batch: M115580

E10-07-2011

A/R Magnabond 6398

2- Grind flush

3- back drill crossbolt if necessary

DP 10-12-6

W/O:		WORK ORDER CHANGES					
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Customer:

Reference:

Approvals: Process Plan: _____

Date: _____

Tooling: _____

Date: _____

Run Start



QC: _____

Date: _____

SPC (Y/N): _____

Date: _____

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

230

QC5- Inspect part completeness to step on W/O

0.00

8/10/12/13

0.00



QC

Quality Control

Memo

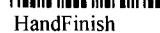
235

Pressure Wash per QSI005 4.3

0.00

27/10/12/13

0.00



HandFinish

Memo

Hand Finishing

AND REALODINE AS PER PAR09-043

240

White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum

0.00



Powdercoat

Powder Coating

11/15/95/1

0.00

Memo

START TIME: 8:50 3200
OVEN TEMPERATURE: 900
FINISH TIME: 9:00

11/2/12/28

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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Cust Item ID:

Required Date: 10/22/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/
Work Center ID

250



QC

Quality Control

Operation
Description

QC3- Inspect Part Finish

Set Up/
Run Hours

0.00

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

255



Skidtubes

Skidtubes

0.00

0.00

1 0 11/02/28

Memo

**** install D3591-1 spacer as per DSI9364 and wearplate and gasket as per
DWG ****

257



QC

QC5- Inspect part completeness to step on W/O

0.00

Memo

S u l o

1 0 11/02/25

Quality Control

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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Start Date: 10/14/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 10/22/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run

Start



QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

260



Packaging

Packaging

Identify as per dwg & Stock Location: W10

0.00

D412-742-041 162982

0.00

1 0 11/02/10

280



QC

Quality Control

QC21- Final Inspection - Work Order Release

0.00

Memo

0.00

11/03/01PL11-03-1

W/O:		WORK ORDER CHANGES					
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Picklist Print

Thursday, October 14, 2010 12:41:48 PM

Page 1

Work Order ID: 62971



Parent Item: D3391-011



Parent Item Name: Fwd Tube Assembly

Start Date: 10/14/2010

Required Date: 10/22/2010

Start Qty: 1.00

Required Qty: 1.00

Comments:

IPP A 05.09.13 New issue KJ/JLM
IPP B 06.02.09 Dwg rev.D EC
IPP C 07.03.13 revF dwg ec
IPP D 07.11.01 ecn1053P EC
IPP Rev:E ECN 1056 07-11-12 DD verified by:EC
IPP Rev:F 08-09-08 new process (ecn 08-510) DD verified by:EC
IPP Rev:G 08-09-10 revH as per dwg DD verified by:EC IPP Rev:H
10.04.07 add part in bom DD verified by:JLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D6013-047 		Manufactured	No			100	Each	36.0000	1	1			

Skidtube Material

Location	Loc Qty	Loc Code
LG	36	
23935	3	
26547	33	

D3401-041



Manufactured

No

Tow Cap Assembly

Location	Loc Qty	Loc Code
FP	13	
46029	12	
50316	1	

D3564-13



Manufactured

No

Wearshoe

Location	Loc Qty	Loc Code
FP17	31	
59660	1	
60862	8	
61828	10	
62229	12	

B65522

x1

10-10-20

11/02/20

11/02/20

W/O:		WORK ORDER CHANGES					
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Thursday, October 14, 2010 12:41:48 PM

Page 2

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Parent Item: D3391-011



Parent Item Name: Fwd Tube Assembly

Start Date: 10/14/2010

Required Date: 10/22/2010

Start Qty: 1.00

Required Qty: 1.00

D3566-13



Manufactured No

255

Each

31.0000

1

1

jl 1102120

Gasket

D3670-4-200



Manufactured No

220

Each

64.0000

9

9

SPACER

D3672-1



Phenolic Washer

Manufactured No

Location

LG

57349

Loc Qty

64

64

Loc Code

364076

44 10-12-6

255

Each

855.0000

4

1102120

Location

ST077

Loc Qty

855

42329

150

52505

705

Loc Code

X4

W/O:		WORK ORDER CHANGES							
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Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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Page 3

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Parent Item Name: Fwd Tube Assembly

Start Date: 10/14/2010

Required Date: 10/22/2010

Start Qty: 1.00

Required Qty: 1.00

AN3C4A



Purchased

No

255

Each

1,361.000

10

10



31 102125

BOLT

Location	Loc Qty	Loc Code
ST303	3	M116704
115438	3	
ST350	1358	
114108	14	
114416	12	
114523	2	
115300	330	
115589	1000	

AN960C10L



NAS1149C032

R

Purchased

No

255

Each

29.0000

10

10



31 102125

washer

Location	Loc Qty	Loc Code
ST245	29	M116304
107534	29	

AELS-1032-130



Purchased

No

255

Each

0.0000

2

2



(x2) 31 102125

INSERT

AELS-1032-225



Purchased

No

255

Each

0.0000

10

10



(x10) 31 102125

INSERT

W/O:		WORK ORDER CHANGES						
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DART AEROSPACE LTD	Work Order:	<u>02971</u>
Description: Float Skidtube (412)	Part Number:	D3391-1
Inspection Dwg: D3391 Rev: H		Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST

X First Article □ Prototype

Measured by:	<u>JK</u>	Audited by:	<u>SL</u>	Prototype Approval:	N/A
Date:	<u>10/11/22</u>	Date:	<u>10/11/22</u>	Date:	N/A

Rev	Date	Change	Revised by	Approved
A	06.04.27	New Issue P/O D3391-011/-021	KJ/JLM	
B	06.06.19	Tolerances revised per D3391 Rev. E	KJ/JLM	
C	07.03.21	Dimensions removed per Dwg rev. F	KJ/JLM	
D	07.11.23	Dwg Rev. updated	KJ/EC/DD	
E	09.12.14	Dwg Rev updated	KJ	

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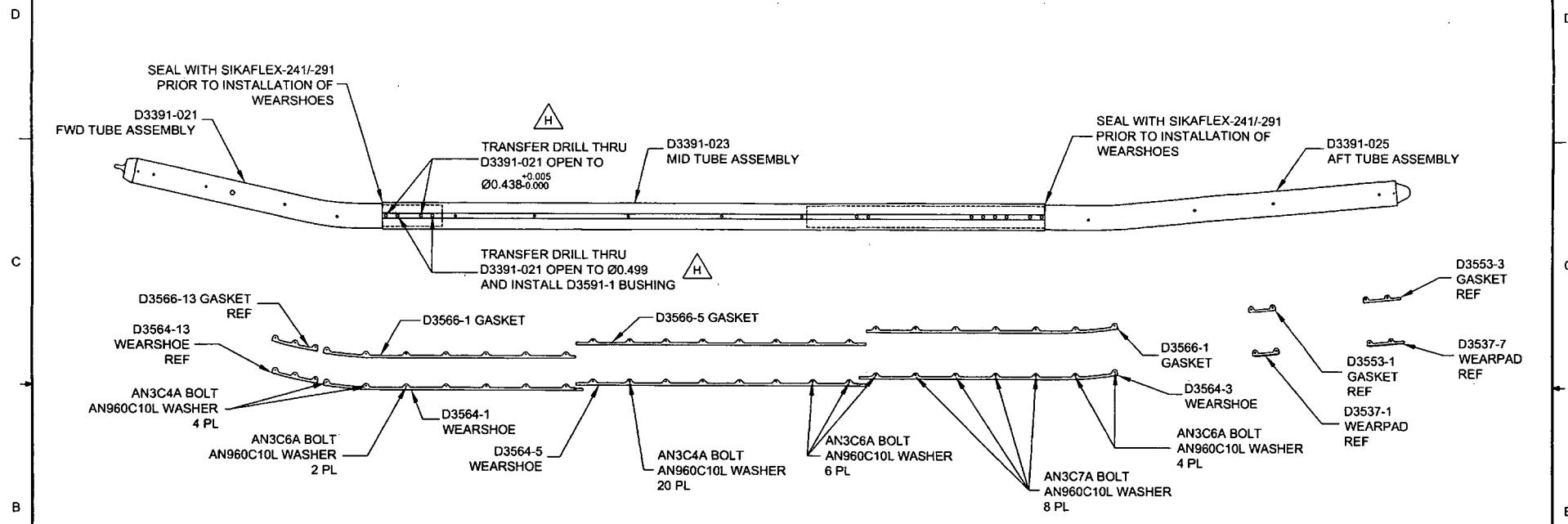
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8 7 6 5 4 3 2 1



D3391-043 FLOAT SKIDTUBE ASSEMBLY PARTS LIST

QTY	PART NUMBER	DESCRIPTION
X	D3391-043	FLOAT SKIDTUBE ASSEMBLY
1	D3391-021	FWD TUBE ASSEMBLY
1	D3391-023	MID TUBE ASSEMBLY
1	D3391-025	AFT TUBE ASSEMBLY
1	D3564-1	WEARSHOE
1	D3564-3	WEARSHOE
1	D3564-5	WEARSHOE
2	D3566-1	GASKET
2	D3566-5	GASKET
20	D3566-13	GASKET
20	D3591-1	BUSHING
24	AN3C4A	BOLT
12	AN3C6A	BOLT
8	AN3C7A	BOLT
44	AN960C10L	WASHER

GENERAL NOTES

- 1) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1 POWDER COAT WHITE (4.3.5.1) PER DART QSI 005 4.3
- 2) SPRAY INSIDE OF TUBE WITH A COAT OF LPS LABORATORIES "LPS-3" AFTER FINISH AND AFTER INSTALLATION OF INSERTS. COAT ALL EXPOSED FASTENERS WITH LPS LABORATORIES "LPS PROCYON" AFTER FINAL ASSEMBLY, CLEAN EXCESS OFF POWDER COATING WITH MEK DEGREASER.
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) USE DART DRILL TEMPLATE DT8217 TO LOCATE AND DRILL $\varnothing 0.297$ SIZE HOLES FOR WEARSHOE INSERTS. C'BORE AS NOTED AND INSTALL INSERTS EXCEPT WHERE INDICATED.

W062911
DETACHED
RELEASED
08.08.20

DESIGN	PH	DART AEROSPACE USA, INC	
DRAWN	AUS	PORT HADLOCK, WA	
CHECKED		DRAWING NO.	REV. H
MFG. APPR.		D3391	SHEET 2 OF 8
APPROVED		TITLE	SCALE
DE APPR.		412 FLOAT SKIDTUBE	NTS
DATE	08.08.20	COPRIGHT © 2005 BY DART AEROSPACE USA, INC THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY OTHER PURPOSE OR COMPANY BY DART OR OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC	

W/O:		WORK ORDER CHANGES					
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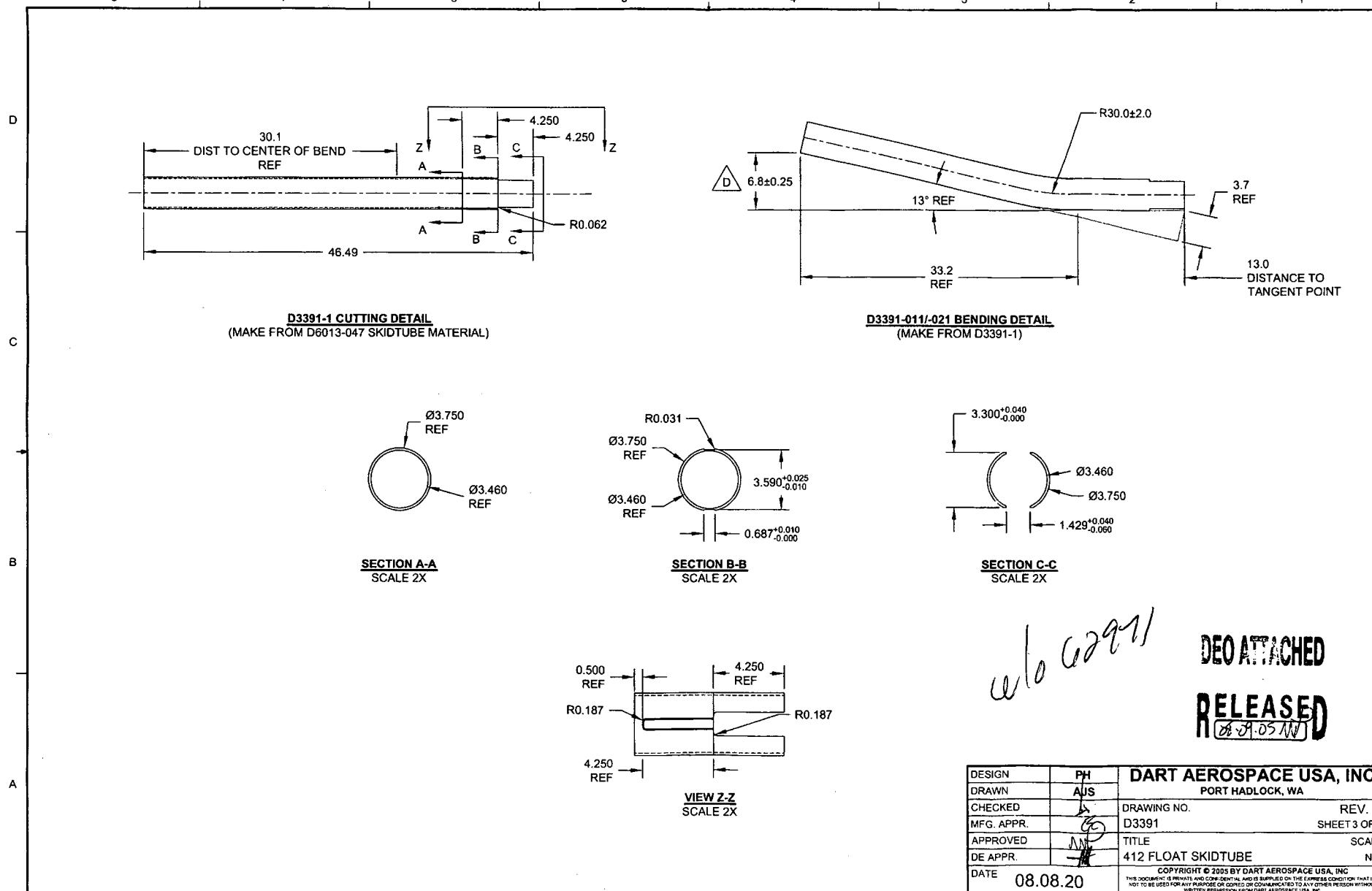
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8 7 6 5 4 3 2 1



8 7 6 5 4 3 2 1

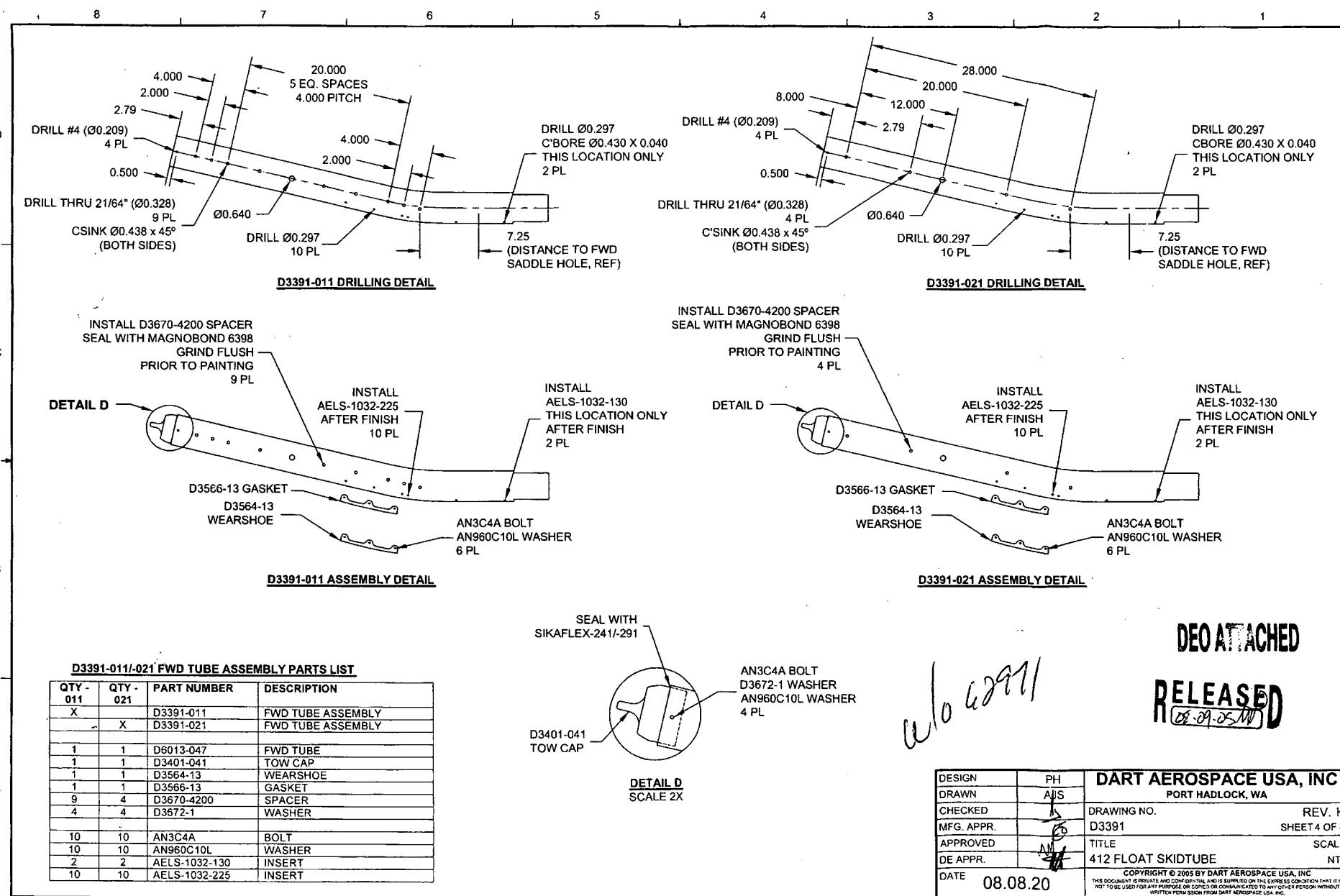
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DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



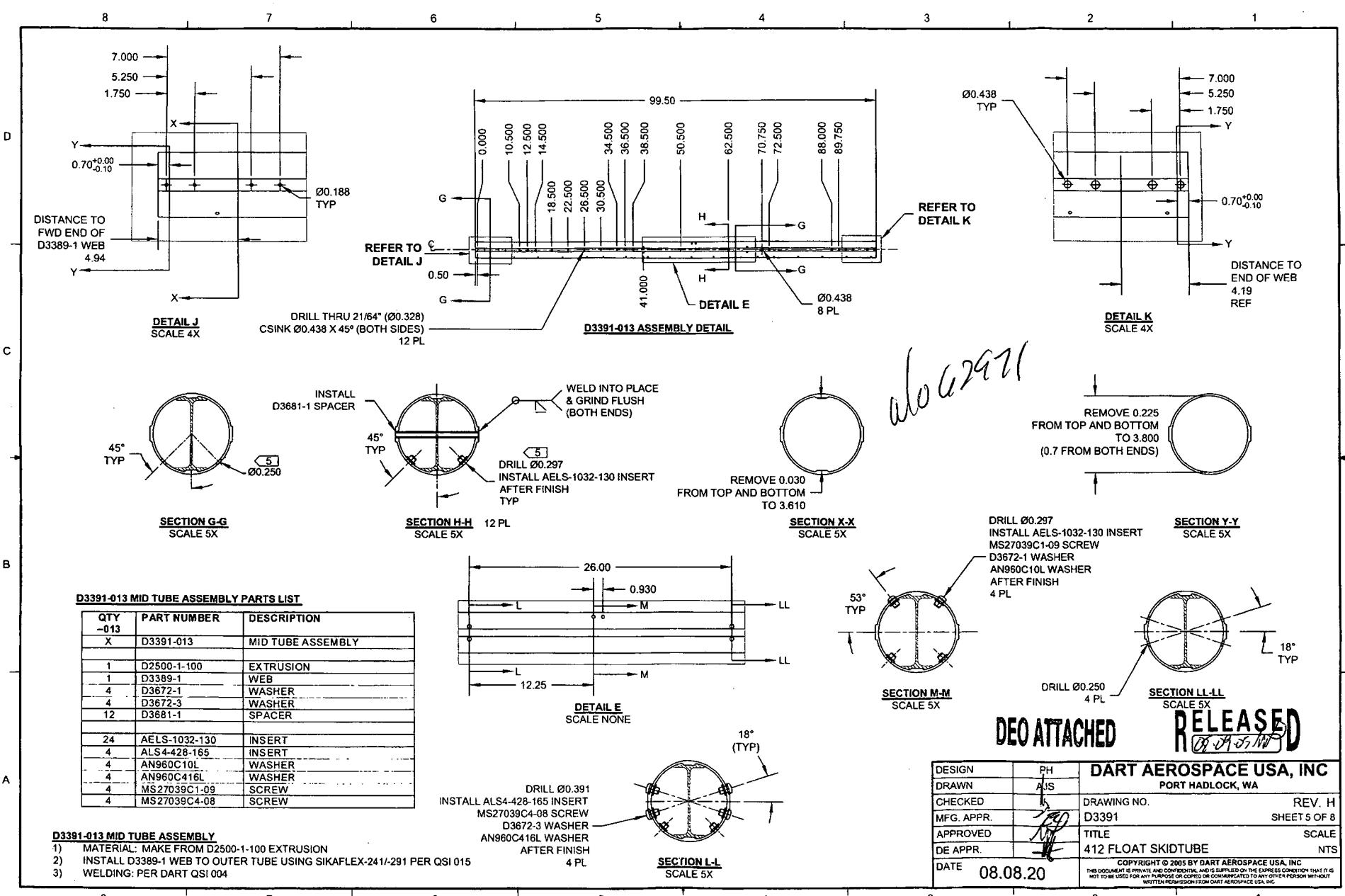
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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



DEO ATTACHED

RELEASED
09-05-11

DESIGN	PH	DART AEROSPACE USA, INC	
DRAWN	AJS	PORT HADLOCK, WA	
CHECKED		DRAWING NO.	REV. H
MFG. APPR.		D3391	SHEET 5 OF 8
APPROVED		TITLE	SCALE
DE APPR.		412 FLOAT SKIDTUBE	NTS
DATE	08.08.20	COPYRIGHT © 2005 BY DART AEROSPACE USA, INC. THIS DOCUMENT IS PROPRIETARY AND CONFIDENTIAL, AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT THE EXPRESS WRITTEN CONSENT OF DART AEROSPACE USA, INC.	

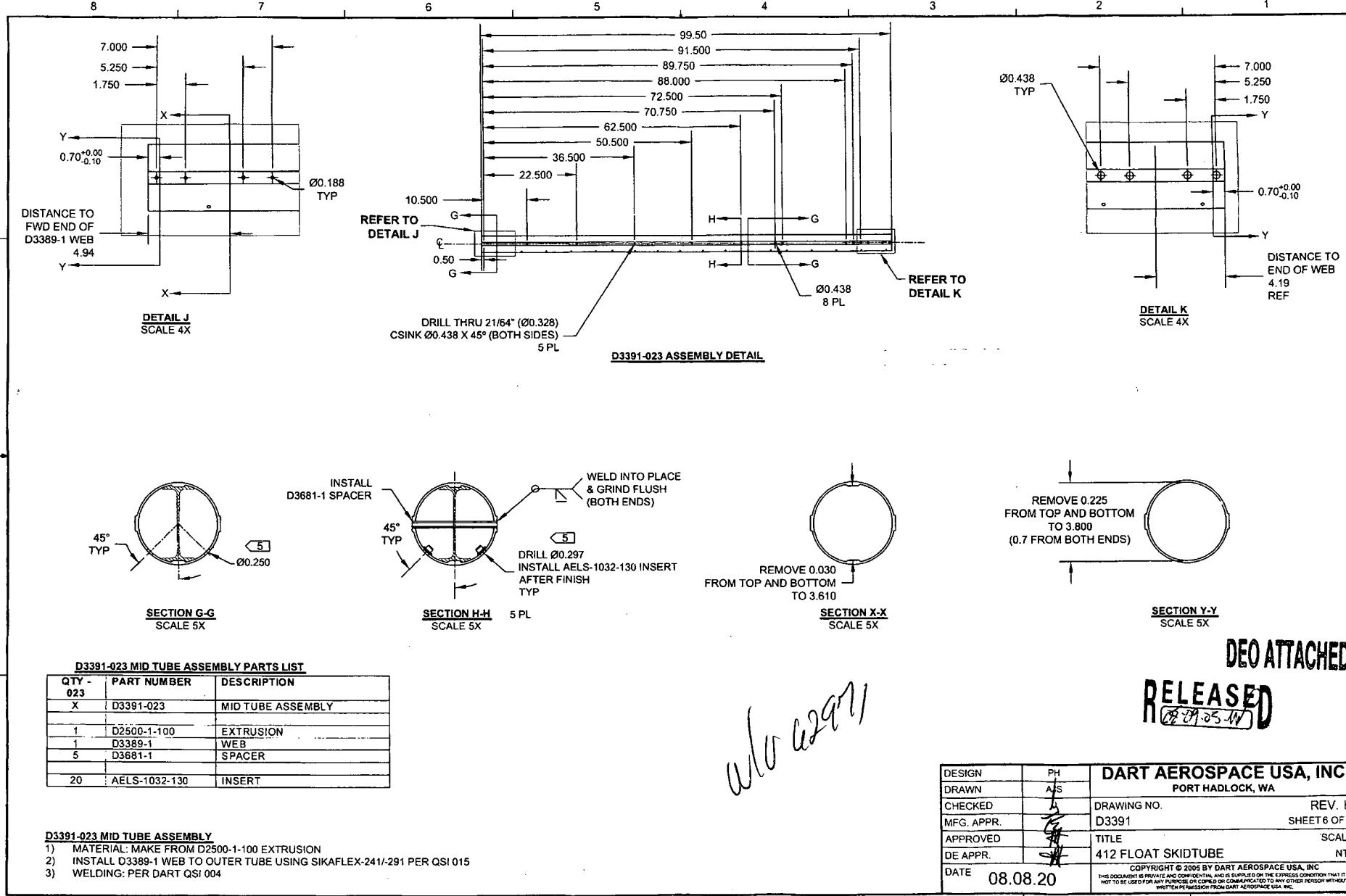
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NOTE: Date & initial all entries



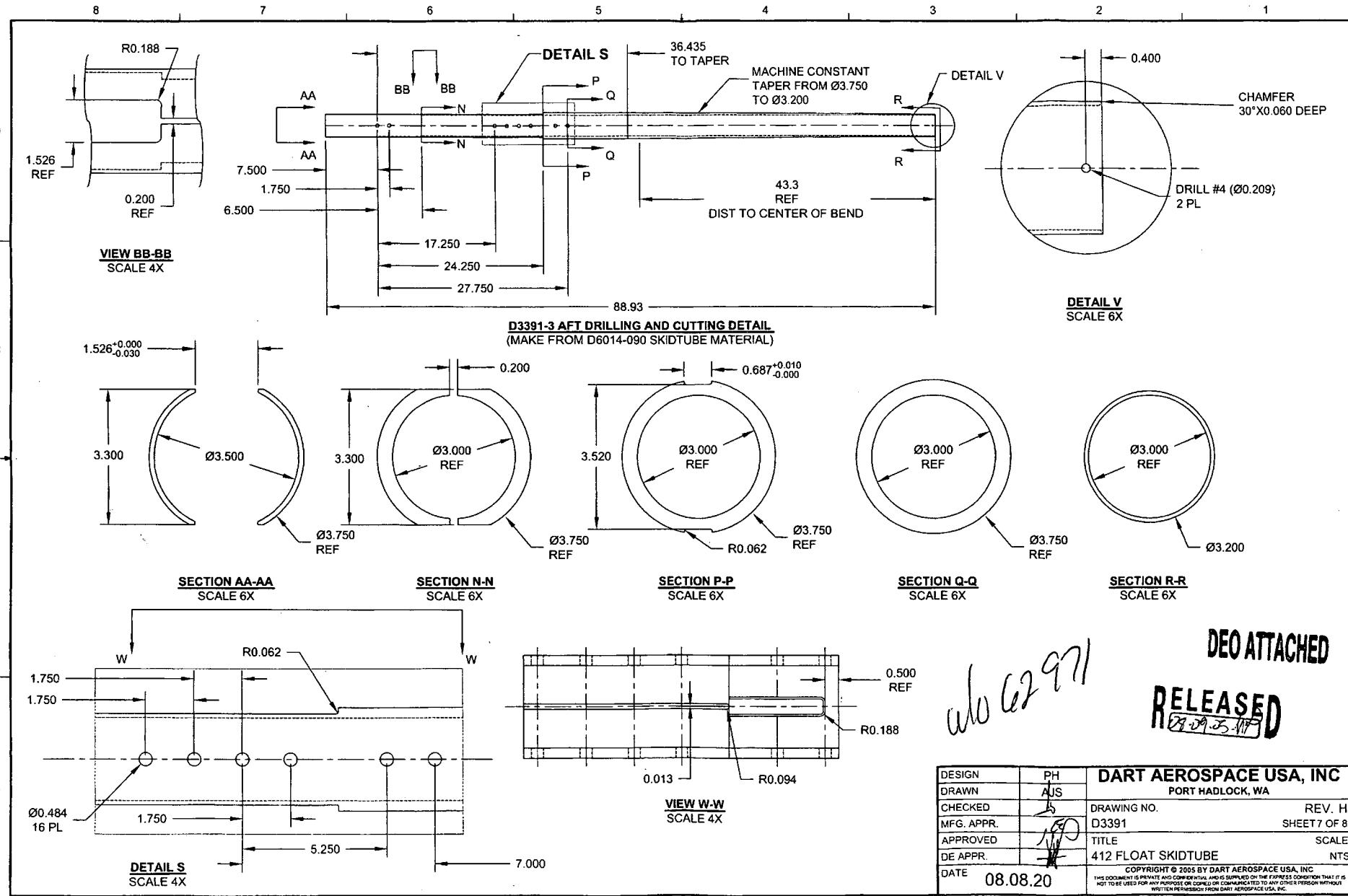
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NOTE: Date & initial all entries



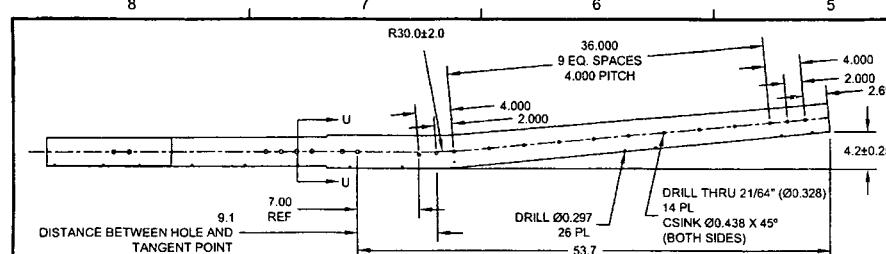
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DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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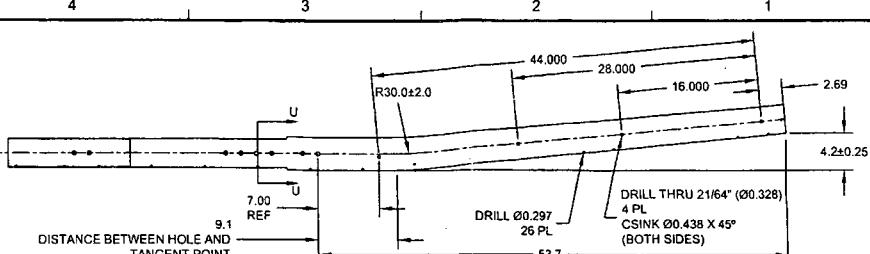
Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

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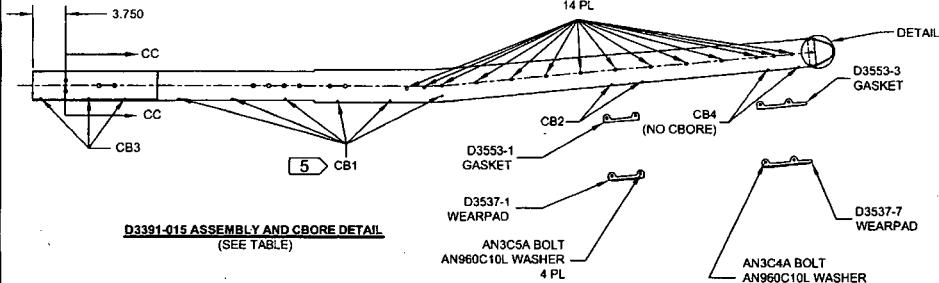
D3391-015 BENDING AND DRILLING DETAIL
(SEE CBORE DETAIL BELOW)



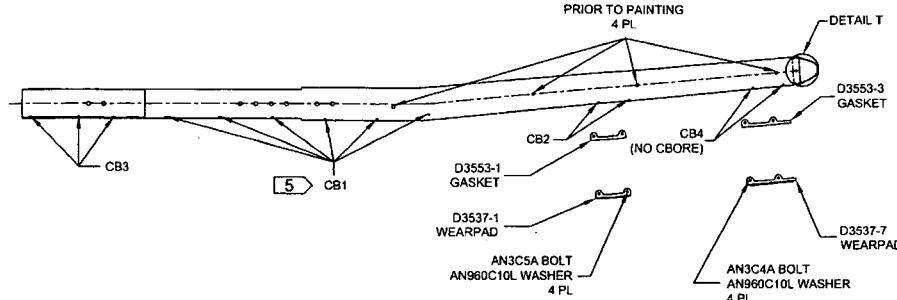
D3391-025 BENDING AND DRILLING DETAIL
(SEE CBORE DETAIL BELOW)

INSTALL D3670-4200 SPACER
SEAL WITH MAGNOBOND 6398
GRIND FLUSH
PRIOR TO PAINTING
14 PL

INSTALL D3670-4200 SPACER
SEAL WITH MAGNOBOND 6398
GRIND FLUSH
PRIOR TO PAINTING
4 PL

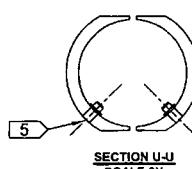


D3391-015 ASSEMBLY AND CBORE DETAIL
(SEE TABLE)

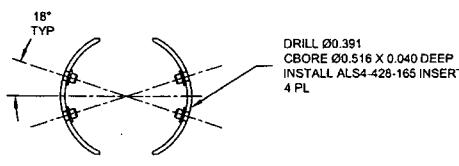


D3391-015/025 AFT TUBE ASSEMBLY PARTS LIST
(SEE TABLE)

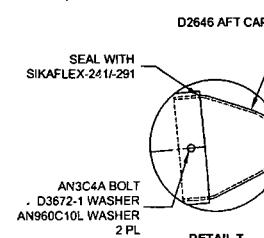
QTY - 015	QTY - 025	PART NUMBER	DESCRIPTION
X	X	D3391-015	AFT TUBE ASSEMBLY
1	1	D6014-090	AFT TUBE
1	1	D2646	AFT CAP
1	1	D3537-1	WEARPAD
1	1	D3537-7	WEARPAD
1	1	D3553-1	GASKET
1	1	D3553-3	GASKET
14	4	D3670-4200	SPACER
2	2	D3672-1	WASHER
14	14	AELS-1032-130	INSERT
12	12	AELS-1032-225	INSERT
4	4	ALS4-428-165	INSERT
6	6	AN3C4A	BOLT
4	4	AN3C5A	BOLT
10	10	AN960C10L	WASHER



SECTION U-U
SCALE 3X



SECTION CC-CC
SCALE 3X



DETAIL T
SCALE 4X

CBORE HOLES MARKED CB1-CB4 AS FOLLOWS AND
INSTALL AELS-1032-XXX AFTER FINISH AS NOTED

HOLES MARKED	QTY D3391-015	QTY D3391-025	CBORE	P/N
CB1	12	12	Ø0.430 X 0.170	AELS-1032-225
CB2	4	4	Ø0.430 X 0.170	AELS-1032-130
CB3	6	6	Ø0.430 X 0.040	AELS-1032-130
CB4	4	4	NONE	AELS-1032-130

8 7 6 5 4 3 2 1

DESIGN	PH	DART AEROSPACE USA, INC
DRAWN	AIS	PORT HADLOCK, WA
CHECKED		
MFG. APPR.		DRAWING NO. D3391
APPROVED		REV. H
DE APPR.		SHEET 8 OF 8
DATE	08.08.20	TITLE 412 FLOAT SKIDTUBE
NTS		SCALE

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W W A291
RELEASED
08.09.05 M

DETACHED

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DRAWING NO. D3391	TITLE 412 FLOAT SKIDTUBE	REV. H	DART AEROSPACE USA, INC ENGINEERING ORDER	D.E.O. NO. D3391-H-1	SHEET NO. SHEET 1 OF 1	SCALE NTS
DRAWN <i>JP</i>	CHECKED <i>h</i>	MFG. APPR. <i>AA</i>	APPROVED <i>My</i>	DE APPR. <i>h</i>		
DATE 09.09.23	DATE 09.09.24	DATE 09/09/25	DATE 09/09/30	DATE 09/09/30	DATE 09/09/30	

PURPOSE:

LPS-3 IS NO LONGER USED DURING ASSEMBLY OF D3391-041/-043 SKIDTUBES.

CHANGE:

AMEND NOTE 2 OF D3391-041/-043 SKIDTUBE ASSEMBLIES (ZN A6-1, A6-2) AS FOLLOWS:

2) ~~SPRAY INSIDE OF TUBE WITH A COAT OF LPS LABORATORIES "LPS-3" AFTER FINISH
AND AFTER INSTALLATION OF INSERTS.~~ COAT ALL EXPOSED FASTENERS WITH
LPS LABORATORIES "LPS PROCYON" AFTER FINAL ASSEMBLY, CLEAN EXCESS
OFF POWDER COATING WITH MEK DEGREASER.

RELEASED
2010-02-02

WP

WW 0297

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries